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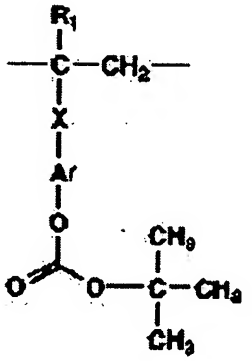
(54) PHOTOSENSITIVE COMPOSITION, PHOTOSENSITIVE PLANOGRAPHIC PRINTING PLATE MATERIAL AND IMAGE FORMING METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To improve the printing resistance of a planographic printing plate without reducing the rate of development of a photosensitive planographic printing plate material using a photo-acid generating agent and an acid- decomposable compd. in combination by incorporating a compd. having specified structural units.

SOLUTION: This photosensitive compsn. forming a photosensitive planographic printing plate material by coating contains a compd. having structural units represented by the formula and preferably contains phenolic resin such as novolak resin or polyhydroxystyrene. In the formula, R1 is H or 1-6C alkyl, preferably H or methyl, X is -CONH-, -COO- or -O-, preferably -CONH-, and Ar is 6-18C aryl, preferably benzene. The compd. is, e.g. 4-t-butoxycarbonylphenylmethacrylamide.



LEGAL STATUS

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* NOTICES *

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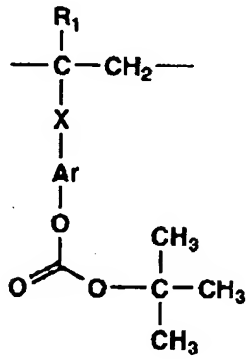
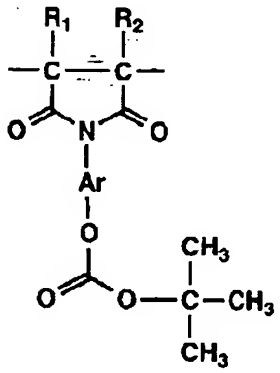
CLAIMS

[Claim(s)]
[Claim 1] The photosensitive constituent characterized by containing the compound which has the structural unit expressed with the following general formula (1).
[Formula 1]
一般式(1)



R1 expresses a hydrogen atom or the alkyl group of carbon numbers 1-6 among [type, X expresses -CONH-, -COO-, or -O-, and Ar expresses the aryl group of carbon numbers 6-18.]
[Claim 2] The photosensitive constituent characterized by containing the compound which has the structural unit expressed with the following general formula (2).
[Formula 2]
一般式(2)



R1 and Ar are synonymous with it of a general formula (1) among [type, and R2 expresses a hydrogen atom or the alkyl group of carbon numbers 1-6.]
[Claim 3] Furthermore, the photosensitive constituent according to claim 1 or 2 characterized by containing a photo-oxide generating agent.

[Claim 4] The photosensitive constituent according to claim 3 characterized by said photo-oxide generating agent having a Tori halogenation methyl group.
[Claim 5] The photosensitive constituent according to claim 3 or 4 characterized by containing the coloring matter which has absorption in an infrared region.
[Claim 6] The charge of a photosensitive lithography plate characterized by painting and forming a photosensitive constituent according to claim 3 to 5 on the field which has the hydrophilic property of a hydrophilic base material.
[Claim 7] The image formation approach characterized by using infrared radiation for the charge of a photosensitive lithography plate according to claim 6, and removing the exposure section with an alkaline developer after exposure.

[Translation done.]

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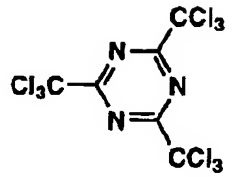
DETAILED DESCRIPTION

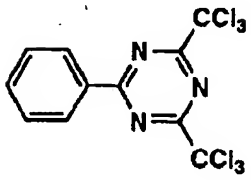
[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the charge of a photosensitive lithography plate and the image formation approach using a new photosensitive constituent and new it.
[0002]
[Description of the Prior Art] The acid generator (henceforth a photo-oxide generating agent) which generates an acid by the exposure of light conventionally, and the compound which may be disassembled with this acid (It is also hereafter called an acidolysis nature compound.) the photosensitive constituent with which the image formation ingredient which has the sensitization layer to contain is known, and the photosensitive constituent containing the compound which has an orthocarboxylic ester radical or a carboxylic amide acetal radical contains the compound which has an acetal radical or a ketal radical in a principal chain in JP,53-133429,A at U.S. Pat. No. 3,779,778 -- moreover, the photosensitive constituent containing the compound which has a silyl ether group is indicated by JP,60-37549,A. Although each of these has sensibility in ultraviolet rays, carries out alkali solubilization by exposure by ultraviolet rays and serves as the non-image section, when the lithography version is created using these constituents, compared with it which formed quinone diazide using the constituent made into the actinolite, it is inferior to print durability.
[0003] Although using two or more sorts of alkali fusibility resin which has different solubility is indicated by JP,1-43940,B as a technique which improves print durability, and print durability improves according to this, a development rate will deteriorate.
[0004]
[Problem(s) to be Solved by the Invention] This invention is made in view of the above-mentioned situation, and the purpose is in raising the print durability of the created lithography version, without degrading the development rate of the charge of a photosensitive lithography plate of the system used combining a photo-oxide generating agent and an acidolysis nature compound.
[0005]
[Means for Solving the Problem] A photo-oxide generating agent is contained [the photosensitive constituent containing the compound which has the structural unit as which the above-mentioned purpose of this invention is expressed in said general formula (1) or (2),] further, The coloring matter which has absorption in an infrared region is contained [that said photo-oxide generating agent has a Tori halogenation methyl group,], Therefore, it is attained by the image formation approach that use infrared radiation for the charge of a photosensitive lithography plate which painted and formed the above-mentioned photosensitive constituent on the field which has the hydrophilic property of a hydrophilic base material, and the above-mentioned charge of a photosensitive lithography plate, and an alkaline developer removes the exposure section after exposure.
[0006] In addition, in the charge of a photosensitive lithography plate of this invention, it is desirable that the photosensitive constituent to paint contains phenol resin, such as novolak resin and polyhydroxy styrene, further.

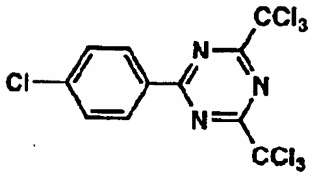
[0007] Hereafter, this invention is explained in full detail for every item.
[0008] <<photosensitivity constituent>> It is characterized by the photosensitive constituent of this invention containing the compound (henceforth the compound of this invention) which has at least one sort chosen from the structural unit expressed with the structural unit expressed with a general formula (1), and a general formula (2).
[0009] Preferably as a structural unit expressed with a general formula (1), when a hydrogen atom or a methyl group, and Ar are [the benzene ring and X] -CONH- for R1, 4-t-butoxy cull BONIRUFENIRU methacrylamide is mentioned.
[0010] Preferably as a structural unit expressed with a general formula (2), when R1 and R2 are [a hydrogen atom or a methyl group, and Ar] the benzene rings, 4-t-butoxycarbonyl-N-phenyl maleimide is mentioned.
[0011] As a compound of this invention, it is the copolymer of a desirable vinyl system monomer and a desirable well-known monomer, and is a with a weight average molecular weight of about 5000 to 100000 thing.
[0012] The compound used for below in the below-mentioned example as a synthetic example of the concrete compound of this invention is shown.
[0013] Synthetic>> of <<compound A 200ml (DMF) of N.N-dimethylformamide was put in into 500ml 4 neck flask equipped with a thermometer, a reflux cooling pipe, churning equipment, and nitrogen installation tubing, and 4-hydroxyphenyl methacrylamide (HyPMA) 70.88g (0.40 mols), acrylonitrile (AN)15.92g (0.30 mols), and methyl methacrylate (MMA) 30.3g (0.30 mols) were dissolved as a compound which constitutes a high molecular compound. Furthermore, as a polymerization reaction initiator, azo-isobutyro-dinitrile 2.46g (0.015 mols) is dissolved, and the polymerization was carried out at 80 degrees C for 6 hours, agitating under a nitrogen air current. Finally, as a reaction halt agent, hydroquinone 0.050g was supplied and the polymerization was terminated.
[0014] The solution which added triethylamine 70ml (0.50 mols) after polymerization reaction termination, next was made to dissolve 2-t-buthoxycarbonyloxy imino-2-phenylacetonitrile (BOC-ON) 110.82g (0.45 mols) in DMF200ml was dropped in 1 hour, and was made to react under a room temperature for further 5 hours.
[0015] Cooled reaction mixture to the room temperature after reaction termination, invest into 5l. of water and it was made to ****, and this was separated, it dried, and the high molecular compound A was obtained.
[0016] When the weight average molecular weight of the obtained compound was measured with the pullulan criterion and the DMF solvent with gel permeation chromatography (GPC), it was 20,000.
[0017] Synthetic>> of <<compound B In composition of compound A, the compound which constitutes a high molecular compound HyPMA70.88g (0.40 mols), AN10.61g (0.20 mols), MMA25.03g (0.25 mols), It changes into hydroxyphenyl methacrylic imide (HyPMI) 18.91g (0.10 mols) and methacrylamide 4.21g (0.05 mols). The high molecular compound B was similarly obtained except having changed triethylamine into 84ml (0.60 mols), and having changed BOC-ON into 135.44g (0.55 mols).
[0018] When the weight average molecular weight of the obtained compound was measured with the pullulan criterion and the DMF solvent by GPC, it was 23,000.
[0019] Synthetic>> of <<compound C In composition of compound A, the high molecular compound C was similarly obtained except having changed into HyPMI75.64g (0.40 mols), AN15.92g (0.30 mols), and MMA30.3g (0.30 mols) the compound which constitutes a high molecular compound, and having changed reaction temperature into 60 degrees C.
[0020] When the weight average molecular weight of the obtained compound was measured with the pullulan criterion and the DMF solvent by GPC, it was 51,000.
[0021] Synthetic>> of <<compound D Ethanol 200ml was put in into 500ml 4 neck flask equipped with a thermometer, a reflux cooling pipe, churning equipment, and nitrogen installation tubing, and HyPMA53.16g (0.30 mols), AN15.92g (0.30 mols), and MMA40.04g (0.40 mols) were dissolved as a compound which constitutes a high molecular compound. Furthermore, azo-isobutyro-dinitrile 2.46g

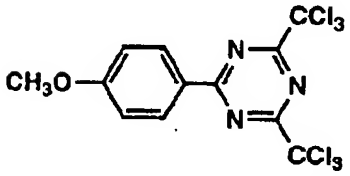
(0.015 mols) is dissolved, and it was made to flow back at 80 degrees C as a polymerization reaction initiator for 6 hours, agitating under a nitrogen air current. Finally, as a reaction halt agent, hydroquinone 0.050g was supplied and the polymerization was terminated.
[0022] Cooled reaction mixture to the room temperature after reaction termination, invest into 5l. of water and it was made to ****, and this was separated, it dried, and the high molecular compound D was obtained.
[0023] When the weight average molecular weight of the obtained compound was measured with the pullulan criterion and the DMF solvent by GPC, it was 21,000.
[0024] Synthetic>> of <<compound E In composition of Compound D, the high molecular compound E was similarly obtained except having changed into HyPMI75.64g (0.40 mols), AN15.92g (0.30 mols), and MMA30.3g (0.30 mols) the compound which constitutes a high molecular compound, and having changed the reaction solvent into the mixed solvent (methanol 100ml/acetone 100ml).
[0025] When the weight average molecular weight of the obtained compound was measured with the pullulan criterion and the DMF solvent by GPC, it was 48,000.
[0026] Synthetic>> of <<compound F In composition of Compound D, macromolecule compound F was similarly obtained except having changed into butyl acrylate 128.17g (1.00 mols) the compound which constitutes a high molecular compound.
[0027] When the weight average molecular weight of the obtained compound was measured with the pullulan criterion and the DMF solvent by GPC, it was 20,000.
[0028] As for the mixing ratio in the case of using the compound of this invention with phenol resin, 95 / 5 - 5/95 are desirable with the compound of phenol resin/this invention.
[0029] As for the compound of this invention, using together with an acidolysis nature compound is desirable. As an acidolysis nature compound JP,48-89003,A, 51-120714, 53-133429, The compound which has C-O-C association of a publication in 55-12995, 55-126236, and 56-17345, JP,60-37549,A and the compound which has this 60 No. -121446 association [Si-O-C] to boil -- The acidolysis compound of others given in JP,60-3625,A and 60-10247, Furthermore, the compound which has Si-N association of a publication in JP,62-222246,A again, A carbonate given in JP,62-25174,A, alt.titanate given in JP,62-280841,A, The compound which has C-S association of a publication can be used for orthosilicic acid ester given in JP,62-280842,A, an acetal given in JP,63-10153,A and ketal, and JP,62-244038,A.
[0030] In this invention, it is 10 - 50 % of the weight to use an acidolysis nature compound in 5 - 70% of the weight of the range to the total solids of a photosensitive constituent desirable especially preferably.
[0031] As a photo-oxide generating agent used for this invention, for example Diazonium, phosphonium, BF4- of sulfonium and iodonium, PF6-, SbF6-, Salts, such as SiF62- and ClO4-, the organic halogenated compound of a triazine system or an OKISA diazole system, Orthoquinone-diazide sulfonyl chloride, an organic metal, etc. can be used, and all the organic halogenated compounds theoretically known as a photoinitiator of a free radical plasticity are compounds which form halide acid, and can be used as a photo-oxide generating agent. the example of the compound which forms the aforementioned halide acid -- U.S. Pat. No. 3,515,552 -- said -- No. 3,536,489 -- and -- said -- the compound which what is indicated by No. 3,779,778 and the West Germany country patent public presentation No. 2,243,621 is mentioned, and is made to generate [West Germany country patent public presentation / No. 2,610,842 / for example,] an acid by the photolysis of a publication can also be used.
[0032] furthermore, the publication to JP,54-74728,A, 55-24113, 55-77742, 60-3626, and 60-138539, for example, 2-TORIKURORO methyl-5-[beta (2-benzo furil) vinyl] -, -- 2-halo methyl -, such as 1, 3, and 4-OKISA diazole, -- 1, 3, and 4-OKISA diazole system compound can be used. Moreover, o-naphthoquinone JIAJITO-4-sulfonic-acid halo GENIDO of a publication can also be used for a thing given in JP,56-17345,A, and JP,50-36209,A.
[0033] In this invention, since especially a desirable acid generator can generate an acid 1Eq or more, it is an organic halogenide which has the Tori halogenation methyl group of a triazine system or an OKISA diazole system.
[0034] Although the example of a desirable acid generator is shown below, it is not limited to these.

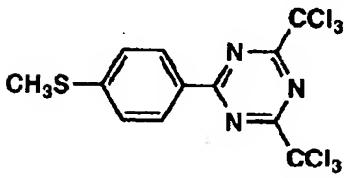
[0035]
[Formula 3]

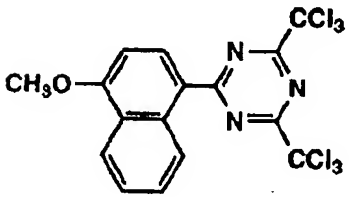


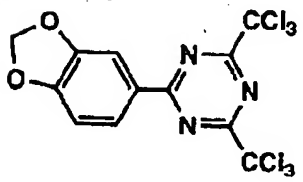












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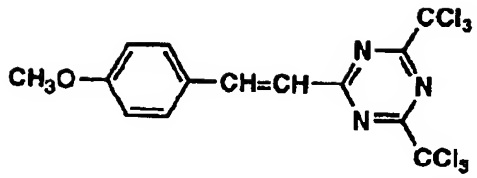

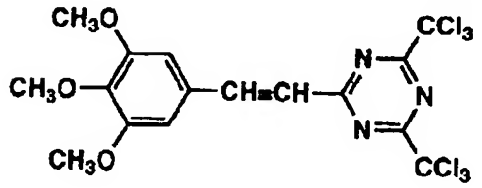

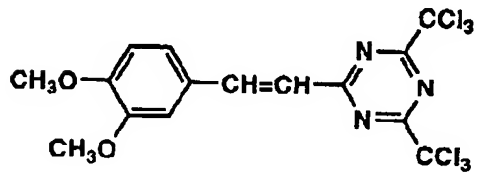

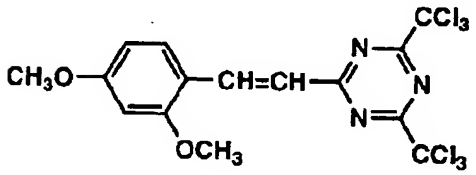

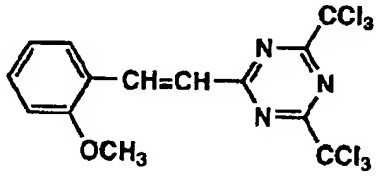

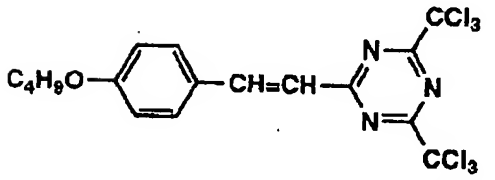

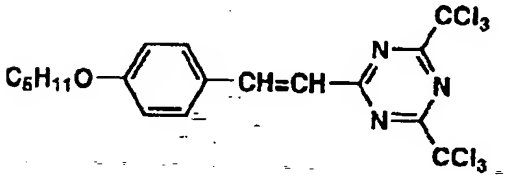

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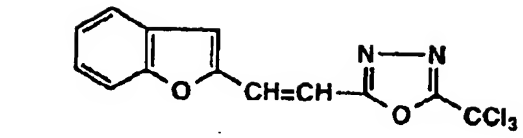
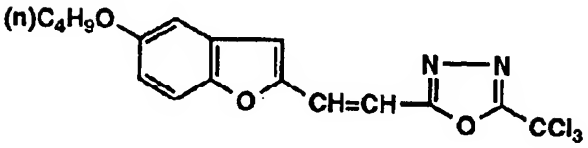
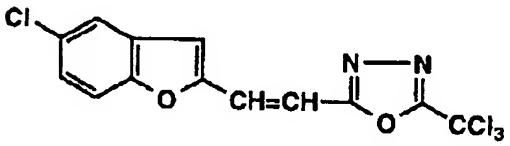
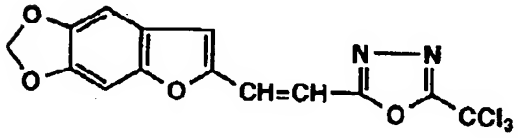
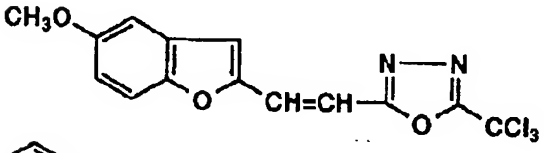
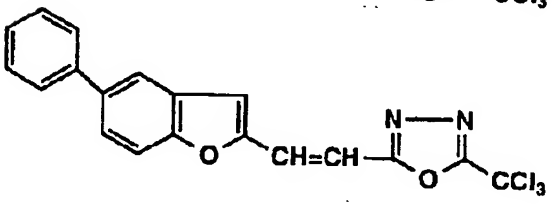


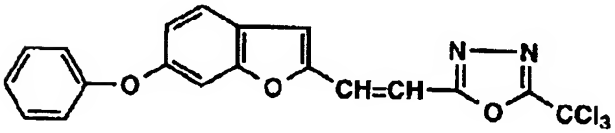




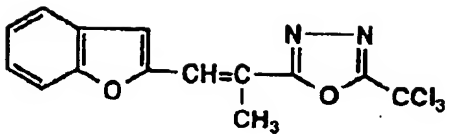


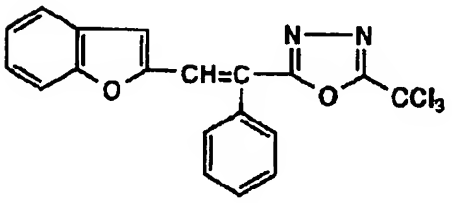


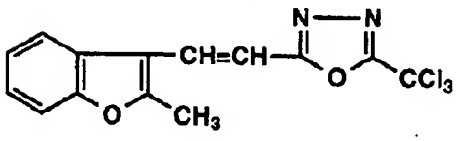


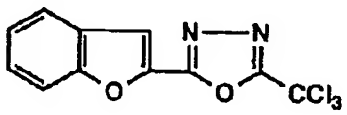


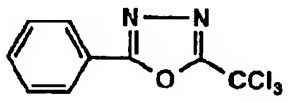
[0038]
[Formula 6]

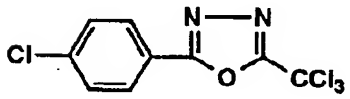


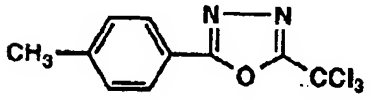


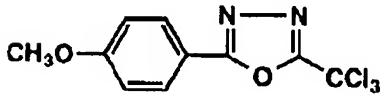




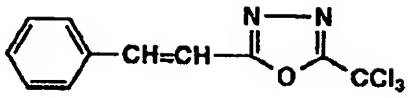


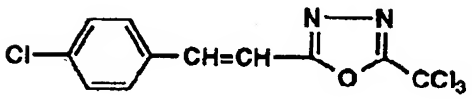


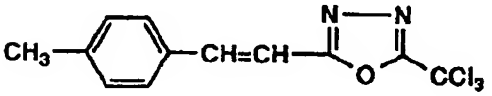


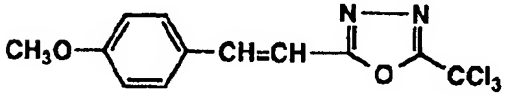


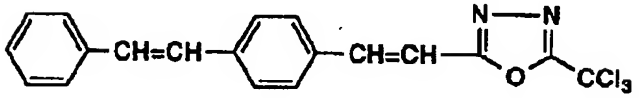
[0039]
[Formula 7]

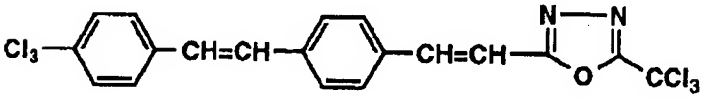


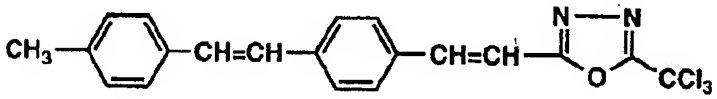


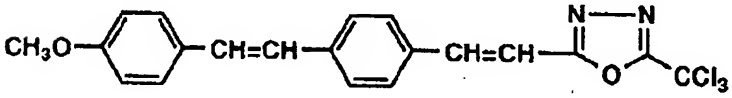






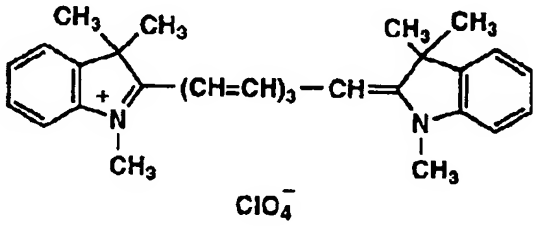




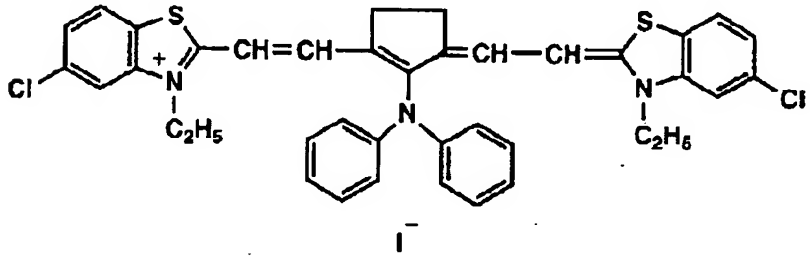


[0040] Although the amount of the photo-oxide generating agent used is broadly changeable with a presentation and physical properties of the chemical property and a photosensitive constituent, the range of about 0.1 - 20 % of the weight of abbreviation is suitable for it to the total weight of the solid content of a photosensitive constituent, and it is 0.2 - 10% of the weight of the range preferably.
[0041] As an infrared absorption agent used for the photosensitive constituent of this invention, the infrared-absorption coloring matter which has absorption in the wavelength of 700nm or more, carbon black, magnetic powder, etc. can be used. Especially a desirable infrared absorption agent has an absorption peak in 700-850nm, and is infrared-absorption coloring matter whose molar extinction coefficient epsilon in a peak is 105 or more.
[0042] As the above-mentioned infrared-absorption coloring matter, cyanine system coloring matter, SUKUARIUMU system coloring matter, crocodile NIUMU system coloring matter, AZURENIUMU system coloring matter, phthalocyanine system coloring matter, naphthalocyanine system coloring matter, poly methine system coloring matter, naphthoquinone system coloring matter, thio pyrylium system coloring matter, dithiol metal complex system coloring matter, anthra kino system coloring matter, India aniline metal complex system coloring matter, intermolecular CT coloring matter, etc. are mentioned.

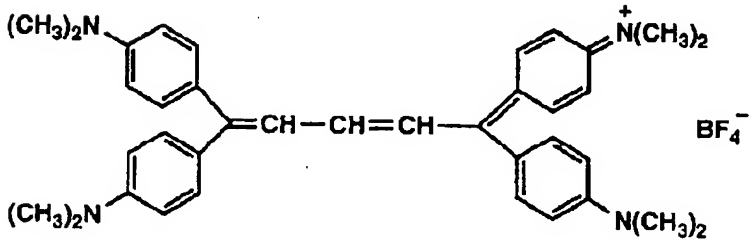
[0043] Moreover, the compound of a publication is mentioned to JP,63-139191,A, 64-33547, JP,1-160683,A, 1-280750, 1-293342, 2-2074, 3-26593, 3-30991, 3-34891, 3-36093, 3-36094, 3-36095, 3-42281, 3-103476, etc. as the above-mentioned infrared-absorption coloring matter.
[0044] Although the typical example of the infrared-absorption coloring matter preferably used for this invention is given to below, it is not limited to these.
[0045]
[Formula 8]
IR1



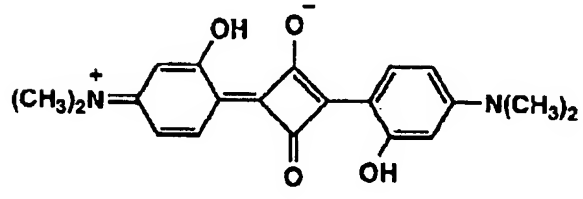
IR2



IR3

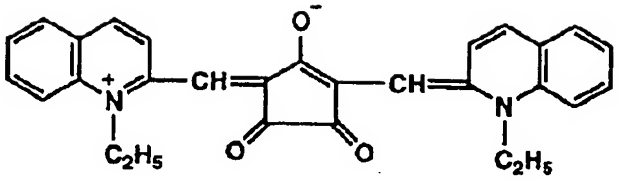


IR4

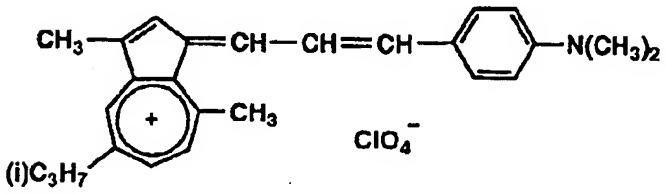


[0046]
[Formula 9]

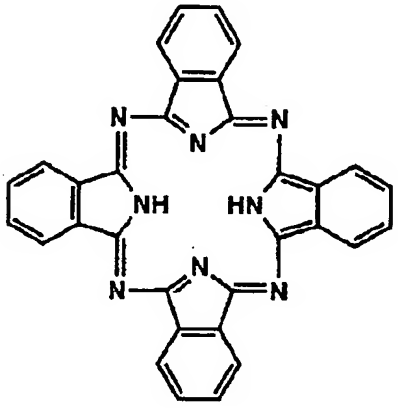
IR5



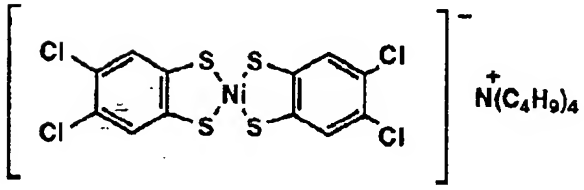
IR6



IR7

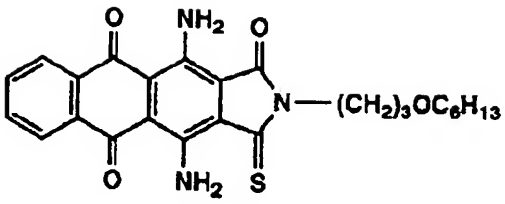


IR8

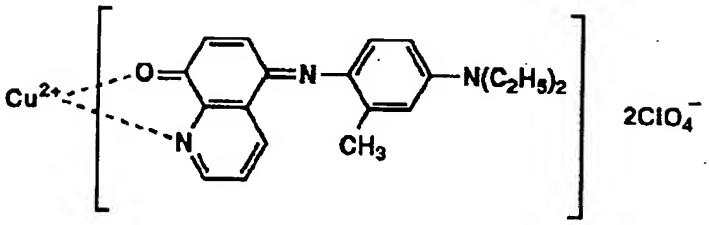


[0047]
[Formula 10]

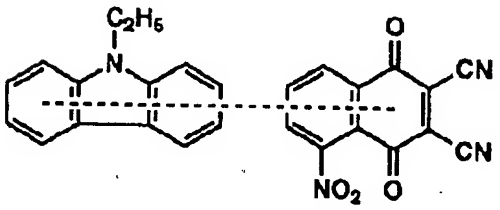
IR9



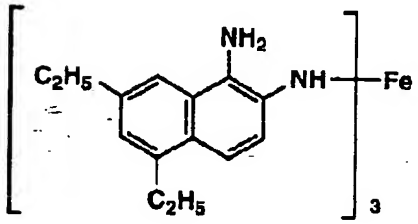
IR10



IR11

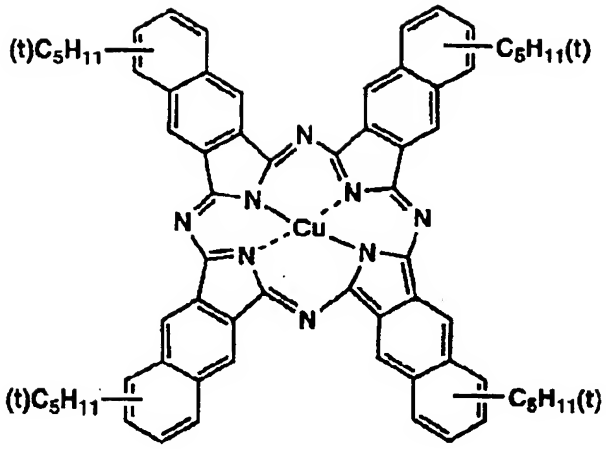


IR12



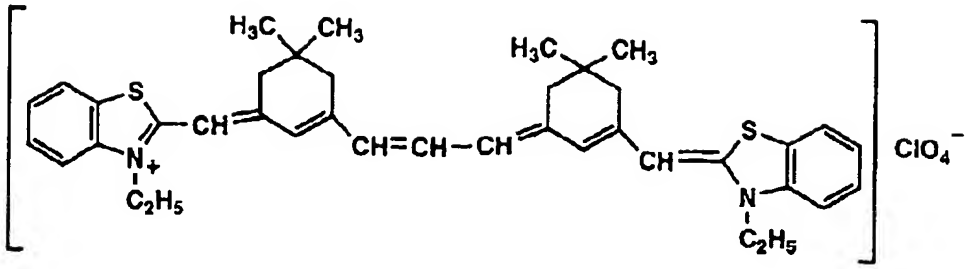
[0048]
[Formula 11]

IR13

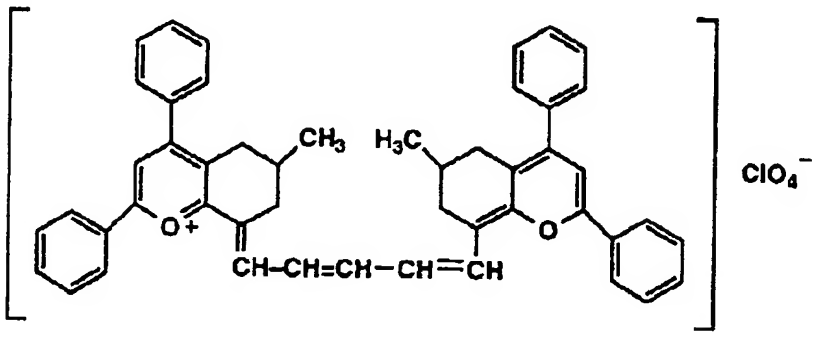


[0049]
[Formula 12]

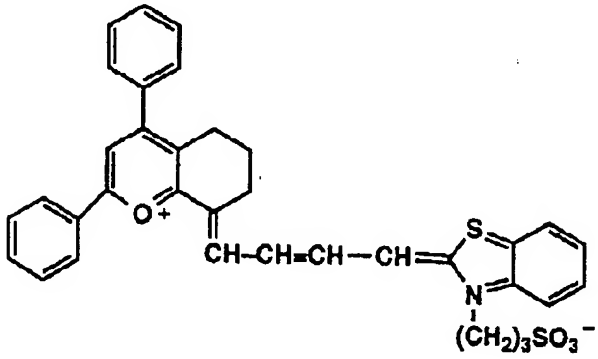
IR14



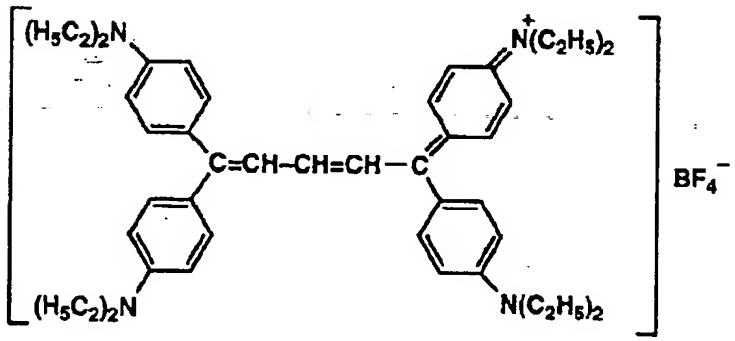
IR15



IR16

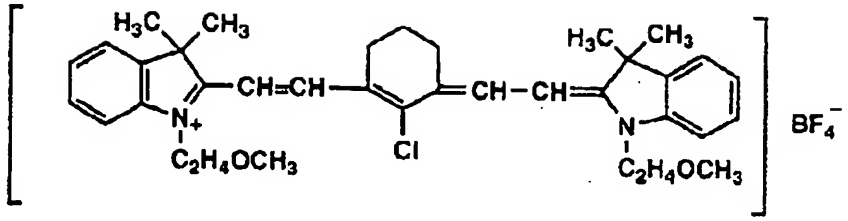


IR17

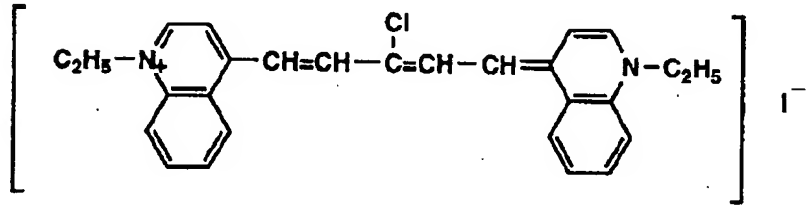


[0050]
[Formula 13]

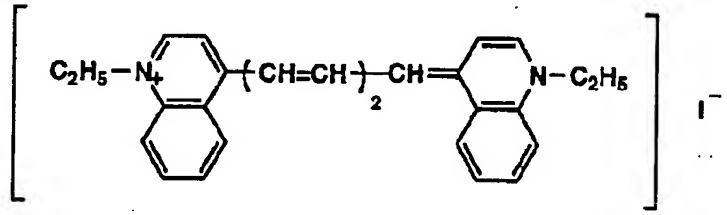
IR18



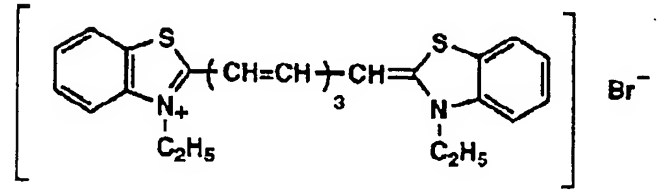
IR19



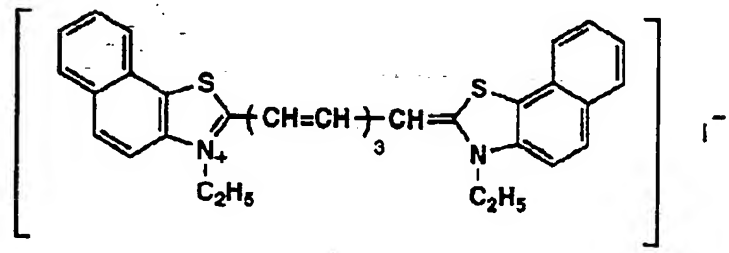
IR20



IR21

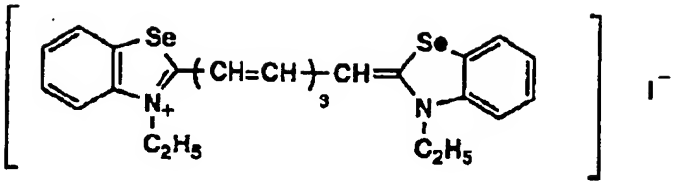


IR22

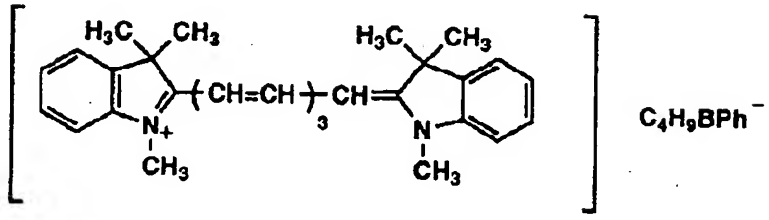


[0051]
[Formula 14]

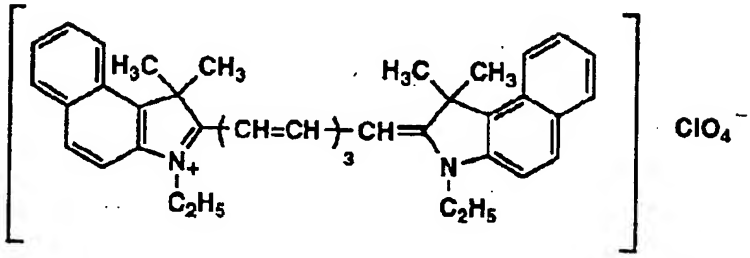
IR23



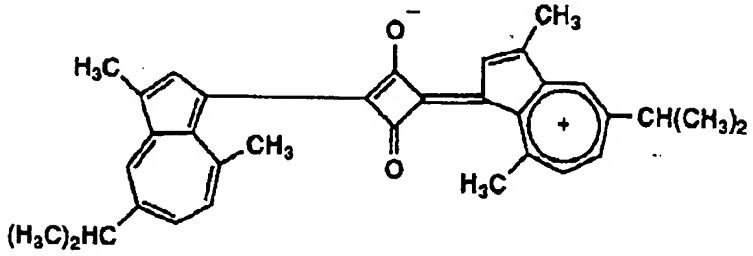
IR24



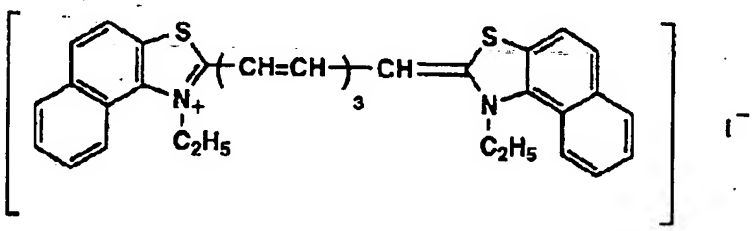
IR25



IR26

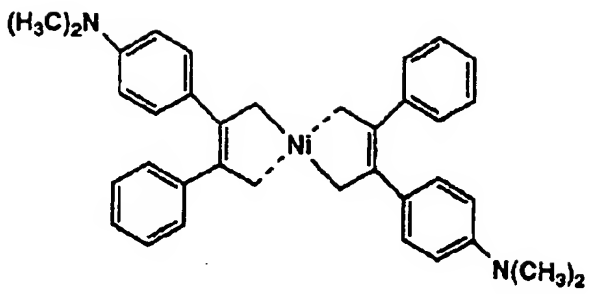


IR27

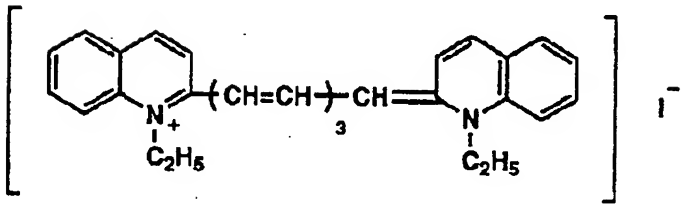


[0052]
[Formula 15]

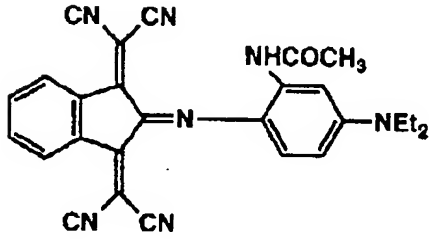
IR28



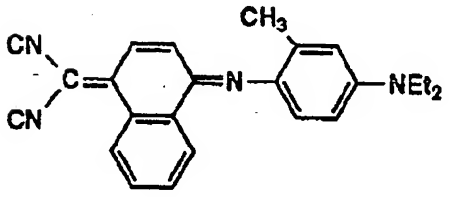
IR29



IR30

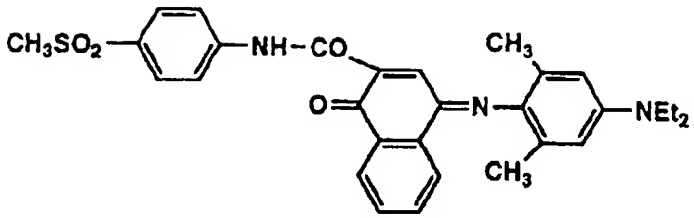


IR31

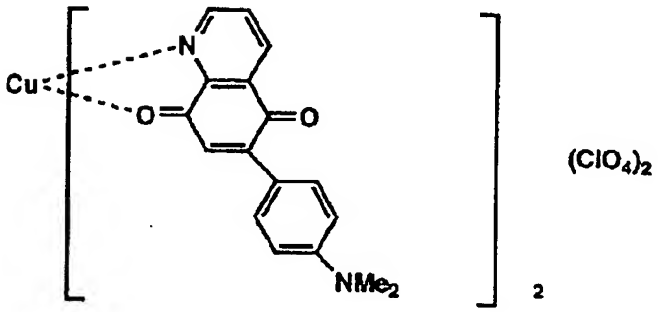


[0053]
[Formula 16]

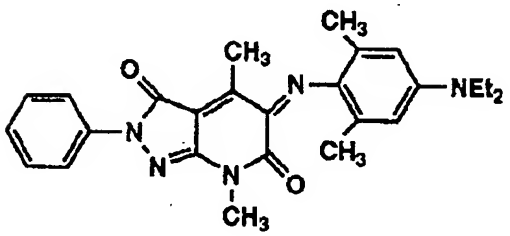
IR32



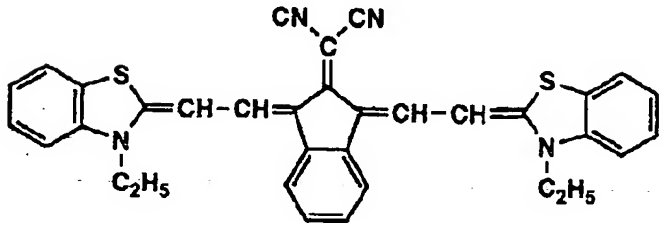
IR33



IR34

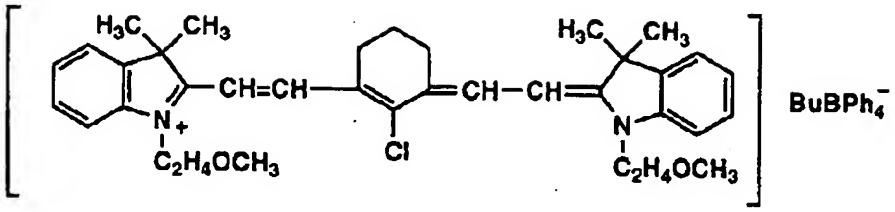


IR35

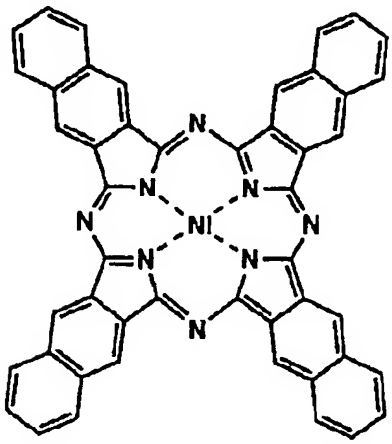


[0054]
[Formula 17]

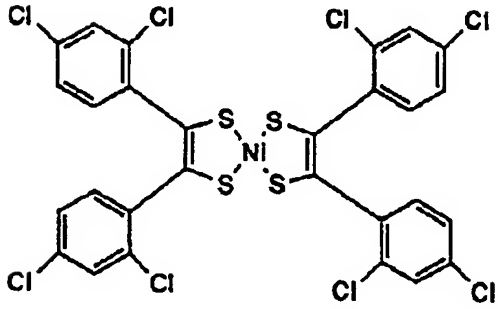
IR36



IR37

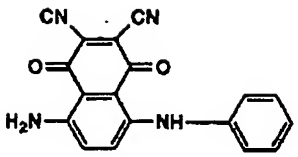


IR38

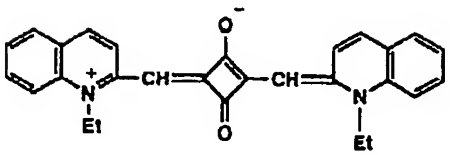


[0055]
[Formula 18]

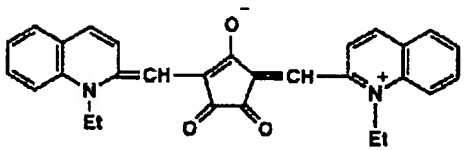
IR39



IR40

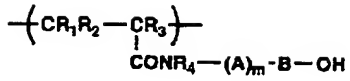


IR41

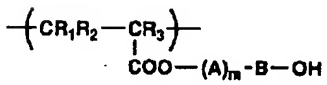


[0056] Although these coloring matter is compoundable by the well-known approach, the following commercial items can also be used.
[0057] Nippon Kayaku: -- IR750(anthraquinone system);IR002 and IR003(aluminum system);IR820 (poly methine system); -- IRG022, IRG033(gene MONIUMU system);CY-2, CY-4, CY-9, CY-20 Mitsui Toatsu Chemicals:KIR103, and SIR103(phthalocyanine system); -- KIR101 and SIR114 (anthraquinone system) ;P A1001, PA1005, PA1006, and SIR128 (metal complex system) Dainippon Ink chemistry: -- Fastogen blue8120 green -- chemistry:MIR-101, and 1011 and 1021 -- in addition to this, it is marketed also from each company, such as Japanese sensitizing dye, Sumitomo Chemical, and Fuji Photo Film.
[0058] Charge of <<photosensitivity lithography plate>> The sensitization layer of the charge of a photosensitive lithography plate of this invention can paint and form the photosensitive constituent of this invention, and can use a binder. For example, the amount binder of macromolecules can be used as a binder. The polymer which has the structural unit expressed with the polymer which has novolak resin and a hydroxystyrene unit, for example, or the general formula mentioned later as an amount binder of giant molecules, other well-known acrylic resin, etc. can be mentioned.
[0059] As novolak resin, p-permutation phenol and the phenol of a publication, or the copolycondensation object resin of cresol and formaldehyde is mentioned, for example to phenol-formaldehyde resin, cresol formaldehyde resin, phenol cresol formaldehyde copolycondensation object resin given in JP,55-57841,A, and JP,55-127553,A.
[0060] As a polymer which has a hydroxystyrene unit, polyhydroxy styrene, a hydroxystyrene copolymer, etc. of a publication can be mentioned, for example to JP,52-41050,B.
[0061]
[Formula 19]

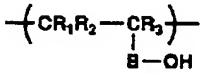
一般式(I)



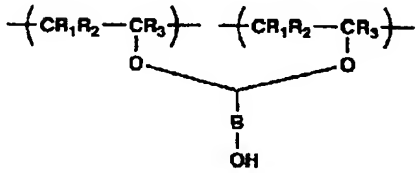
一般式(II)



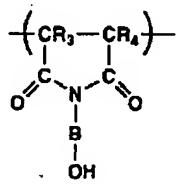
一般式(III)



一般式(IV)



一般式(V)



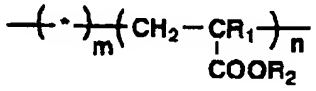
[0062] Among a formula, R1 and R2 express a hydrogen atom, an alkyl group, or a carboxyl group, respectively, and they are a hydrogen atom preferably. R3 expresses a hydrogen atom, a halogen atom, or an alkyl group, and is a hydrogen atom or a methyl group, and an ethyl group preferably. R4 expresses a hydrogen atom, an alkyl group, an aryl group, or an aralkyl radical, and is a hydrogen atom preferably. Although the phenylene group or naphthylene radical also containing what has a substituent is expressed and alkoxy groups, such as halogen atoms, such as alkyl groups, such as a methyl group and an ethyl group, a chlorine atom, and a bromine atom, a carboxylic-acid radical, and a methoxy group, an ethoxy radical, a hydroxyl group, a sulfonic group, a cyano group, a nitro group, an acyl group, etc. are mentioned as a substituent, B does not have a substituent preferably or is permuted by the methyl group. A is the alkylene group which connects a nitrogen atom or an oxygen atom, and an aromatic series carbon atom and which may have a substituent, and m expresses the integer of 0-10.
[0063] The above-mentioned general formula (I) as a monomeric unit which can be used combining the structural unit expressed with - (V) Ethylene system partial saturation olefins, such as ethylene, a propylene, an isobutylene, a butadiene, and an isoprene; Styrene, Styrene, such as alpha methyl styrene, p-methyl styrene, and p-chloro styrene; An acrylic acid, Acrylic acids, such as a methacrylic acid; Partial saturation aliphatic series dicarboxylic acid; methyl acrylates, such as an itaconic acid, a maleic acid, and a maleic anhydride, An ethyl acrylate, acrylic-acid-n-butyl, isobutyl acrylate, Acrylic-acid dodecyl, acrylic-acid-2-chloro ethyl, acrylic-acid phenyl, The ester of alpha-methylene aliphatic series monocarboxylic acid, such as alpha-chloro methyl acrylate, a methyl methacrylate, and ethyl methacrylate; Acrylonitrile, nitril [, such as meta-acrylonitrile,]; -- amides [, such as acrylamide]; -- an acrylic anilide -- Anilides, such as p-chloro acrylic anilide, m-nitro acrylic anilide, and m-methoxy

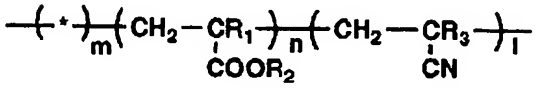
acrylic anilide; Vinyl acetate, Vinyl ester, such as propionic-acid vinyl, BENZOE acid vinyl, and vinyl acetate; The methyl vinyl ether, Vinyl ether, such as ethyl vinyl ether, isobutyl vinyl ether, and beta-chloro ethyl vinyl ether; A vinyl chloride, Vinyl derivative;1-methyl-1-methoxy ethylene, such as vinylidene chloride and vinylidene cyanide, 1 and 1-dimethoxyethylene, 1, 2-dimethoxyethylene, 1, and 1-dimethoxy carbonyl ethylene, Ethylene derivatives, such as 1-methyl-1-nitro ethylene; N-vinyl system monomers, such as N-vinyl pyrrole, N-vinylcarbazole, N-vinyl indole, N-vinyl pylori DIN, and N-vinyl pyrrolidone, are mentioned. These vinyl system monomers exist in a high molecular compound with the structure in which the partial saturation double bond cleft. The ester of aliphatic series monocarboxylic acid and nitril are desirable especially.

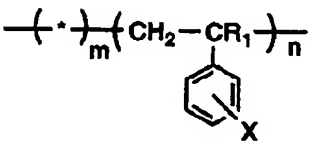
[0064] The polymer which has the structural unit expressed with a general formula (I) can be expressed with (a) - (h) still more concretely.

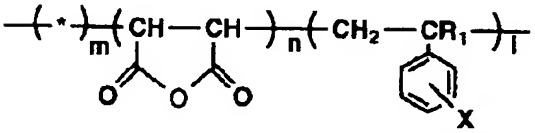
[0065]

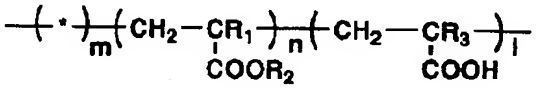
[Formula 20]

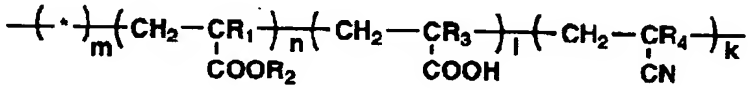
(a) 

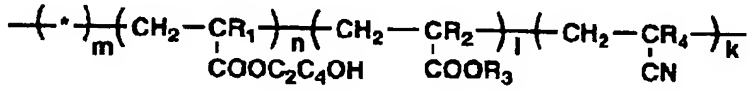
(b) 

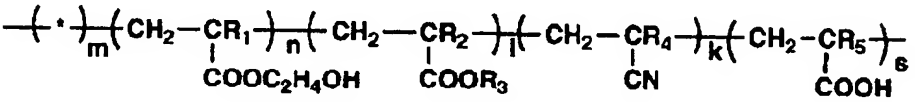
(c) 

(d) 

(e) 

(f) 

(g) 

(h) 

[0066] (a) In - (h), R1-R5 express a hydrogen atom, an alkyl group, or a halogen atom, respectively, and X expresses an alkyl group or a halogen atom. Moreover, m, n, l, k, and s express mol % of each structural unit.

[0067] Moreover, novolak resin, the polymer which has a hydroxystyrene unit, and the polymer which has the structural unit expressed with a general formula can also be used together.

[0068] Furthermore, in order to improve the admiration oily skin of a sensitization layer, oleophilic resin, such as a condensate of the phenols permuted by JP,50-125806,A by the alkyl group of the carbon numbers 3-15 of a publication and an aldehyde and t-butylphenol formaldehyde resins, can be added. Moreover, a sensitization layer can be made to contain coloring matter other than the above, a pigment, a sensitizer, etc. if needed.

[0069] In case the photosensitive constituent of this invention is applied, the solvent which dissolves

each component can be used and propylene glycol monomethyl ether, the propylene glycol monoethyl ether, methyl cellosolve, methyl-cellosolve acetate, ethylcellosolve, ethylcellosolve acetate, dimethylformamide, dimethyl sulfoxide, dioxane, an acetone, a cyclohexanone, a trichloroethylene, a methyl ethyl ketone, etc. are mentioned. These solvents are independent, or two or more sorts use them, mixing.

[0070] Rotation spreading, wire bar spreading, DIP spreading, the Ayr knife spreading, roll coating, blade spreading, curtain spreading, etc. are well-known, for example, possible for the method of application. Although coverage changes with applications, speaking of the charge of a photosensitive lithography plate, 0.5 - 5.0 g/m2 is desirable as solid content.

[0071] As for the hydrophilic base material which prepares a sensitization layer, the paper in which metallic foils, such as paper in which metal plates, such as aluminum, zinc, steel, and copper, the metal plate with which chromium, zinc, copper, nickel, aluminum, iron, etc. were plated or vapor-deposited by the list, paper, plastic film and a glass plate, and resin were applied, and aluminum, were stretched, the plastic film which carried out hydrophilization processing are mentioned. Among these, an aluminum plate is desirable. When applying to the charge of a photosensitive lithography plate, it is desirable to use the aluminum plate with which surface treatment, such as sealing, etc. is performed as a base material graining processing, anodizing, and if needed.

[0072] As the approach of graining processing, the approach of etching, for example by the mechanical approach and electrolysis is mentioned. As the mechanical approach, the ball grinding method, a brushing method, the grinding method by liquid honing, buffing, etc. are mentioned, for example. independent [in various above-mentioned approaches] according to the presentation of aluminum material etc. -- or it can combine and use.

[0073] In order to etch by electrolysis, inorganic acids, such as a phosphoric acid, a sulfuric acid, a hydrochloric acid, and a nitric acid, are performed using the independent bath which it was, and was carried out and was mixed two or more sorts. After graining processing, if needed, with the water solution of alkali or an acid, a desmut treatment is performed, and it neutralizes and rinses.

[0074] Anodizing electrolyzes an aluminum plate as an anode plate, using one sort or the solution included two or more sorts as the electrolytic solution, and a sulfuric acid, a chromic acid, oxalic acid, a phosphoric acid, a malonic acid, etc. are performed. 1 - 50 mg/dm2 is suitable, and is 10 - 40 mg/dm2 preferably, and the formed amount of anodized coating is 25 - 40 mg/dm2 especially preferably. The amount of anodized coating is immersed in phosphoric-acid chromic-acid bath liquid (85% liquid of phosphoric acids: dissolve in 1l. water and produce 35ml and chrome oxide (IV):20g) in an aluminum plate, dissolves an oxide skin, and is calculated from the weight change measurement before and behind the coat dissolution of a plate.

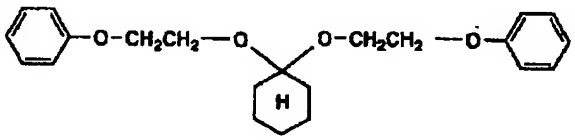
[0075] As for sealing, ebullition water treatment, steam treatment, sodium silicate processing, dichromate water-solution processing, etc. are mentioned as an example. In addition, under-coating processing by the water soluble polymer compound and the water solution of metal salts, such as fluoride zirconic acid, can also be performed to an aluminum plate base material.

[0076] <<image formation approach>> If the charge of a photosensitive lithography plate of this invention is made to contain infrared-absorption coloring matter, image exposure can be performed using the light source with a wavelength of 700nm or more. As the light source, semiconductor laser, helium-Ne laser, an YAG laser, carbon dioxide laser, etc. are mentioned. 50mW or more is suitable for an output, and it is 100mW or more preferably.

[0077] As a developer used for development, a drainage system alkali developer is suitable. As for a drainage system alkali developer, the water solution of alkali-metal salts, such as a sodium hydroxide, a potassium hydroxide, a sodium carbonate, potassium carbonate, a meta-sodium silicate, a meta-potassium silicate, sodium diphosphate, and the third sodium phosphate, is mentioned. The concentration of said alkali-metal salt is 0.1 - 10 % of the weight suitably [using in 0.05 - 20% of the weight of the range], and more preferably.

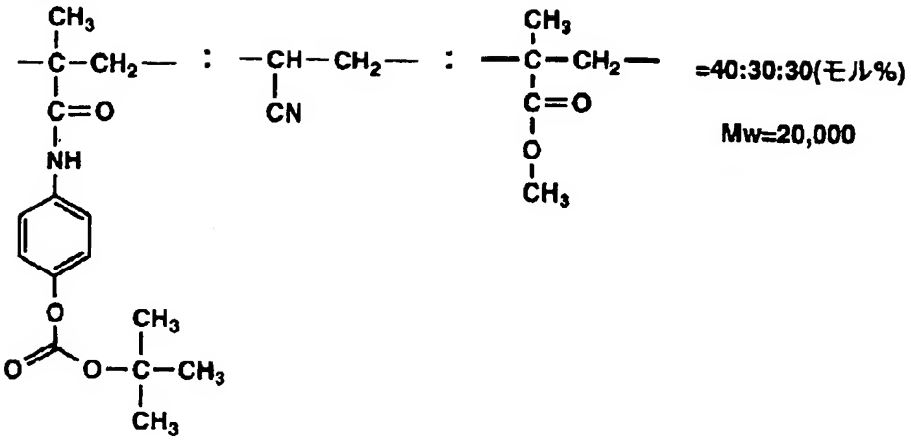
[0078] Organic solvents, such as an anionic surfactant, an amphoteric surface active agent, and alcohol, can be added to a developer if needed. As an organic solvent, propylene glycol, ethylene glycol

monophenyl ether, benzine alcohol, n-propyl alcohol, etc. are useful.
[0079]
[Example] Although an example is given and this invention is hereafter explained to a detail, the mode of this invention is not limited to this.
[0080] After performing cleaning processing for an aluminum plate (the quality of the material 1050, temper H16) with an example 1 (creation of base material) thickness of 0.24mm in 3%JIS No. 3 specific silicate water solution, electrolytic etching processing was performed in 1% hydrochloric-acid water solution on condition that temperature;25 degree C, current density;80 A/dm2, and quantity of electricity;400 C/dm2. After rinsing, anodizing was performed in 30% sulfuric-acid solution, the coat of 3 g/m2 was prepared, further, the specific silicate water solution performed hydrophilization processing for 20 seconds 0.5 85-degree C%, and the aluminum base material for the charges of a photosensitive lithography plate was produced.
[0081] (Creation of the charge of a photosensitive lithography plate) The photosensitive constituent coating liquid of the following presentation was applied to the aluminum base material using the wire bar, it dried for 4 minutes at 80 degrees C, and the sensitization layer of thickness 2.0 mg/dm2 was formed.
[0082]
<Photosensitive constituent coating liquid -1> Compound A 30g Novolak resin 50g[phenol / m-cresol / p-cresol: Mole ratio 5 / 57/38 weight-average-molecular-weight 3700] ·
Acidolysis nature compound a It is made to react at 100 degrees C for 1 hour, agitating 0.5 mols of 15g [cyclohexanones, 1.0 mols of phenyl cellosolves, and 80mg of p-toluenesulfonic acid, and temperature was gradually raised to 150 degrees C after that, and it was made to react at 150 more degrees C for 4 hours. The methanol generated by the reaction was distilled off in the meantime. After cooling, tetrahydrofuran 500ml and 2.5g of anhydrous potassium carbonate were added, and it was agitated and filtered. Reduced pressure distilling off of the solvent was carried out from filtrate, the low-boiling point component was distilled off under 150 more degrees C and a high vacuum, and the ****** oily acidolysis nature compound a was obtained.]
[0083]
[Formula 21]
酸分解性化合物a



[0084]
S-triazine 4g Infrared-absorption coloring matter 1g[Nippon Kayaku [Co., Ltd.] make: CY-10] Propylene glycol monomethyl ether 150ml Methyl ethyl ketone It is photosensitive constituent coating liquid similarly except having replaced with 50ml compound A and having used compound B-F. - 2-6 were prepared.
[0085]
[Formula 22]

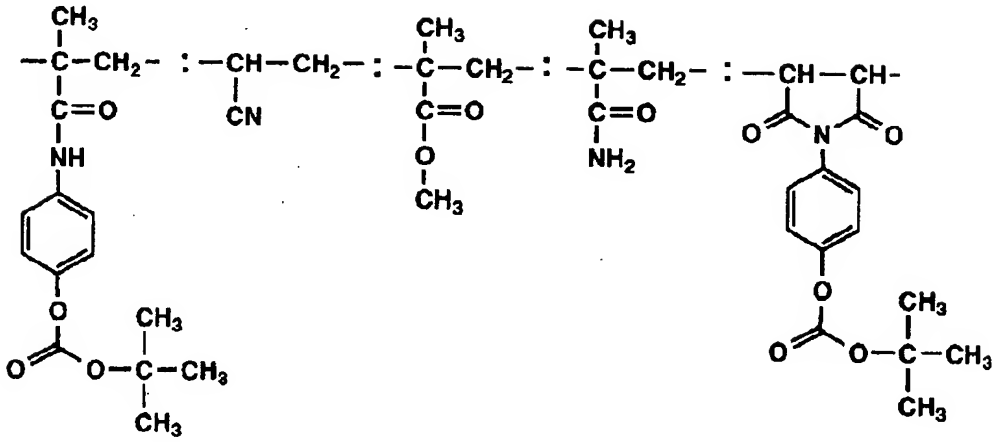
化合物A



=40:30:30(モル%)

Mw=20,000

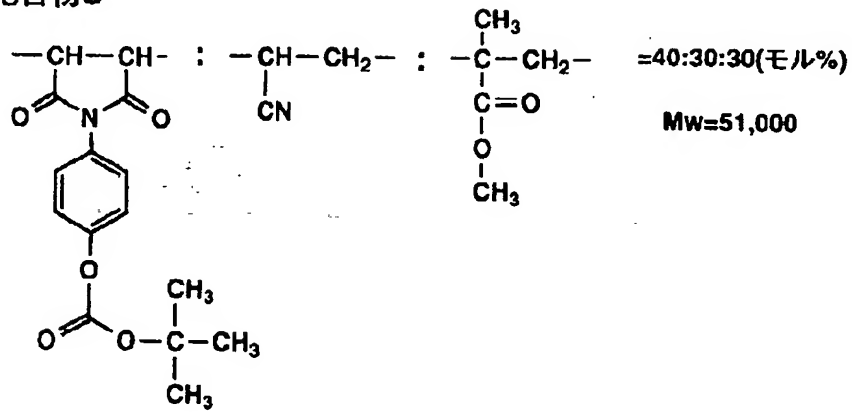
化合物B



=40:20:25:5:10(モル%)

Mw=23,000

化合物C

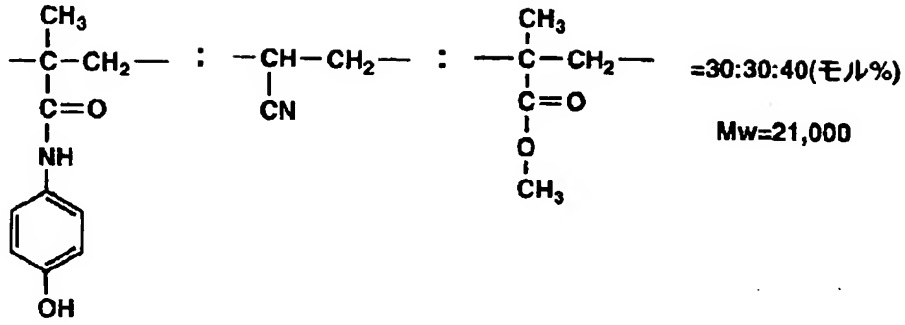


=40:30:30(モル%)

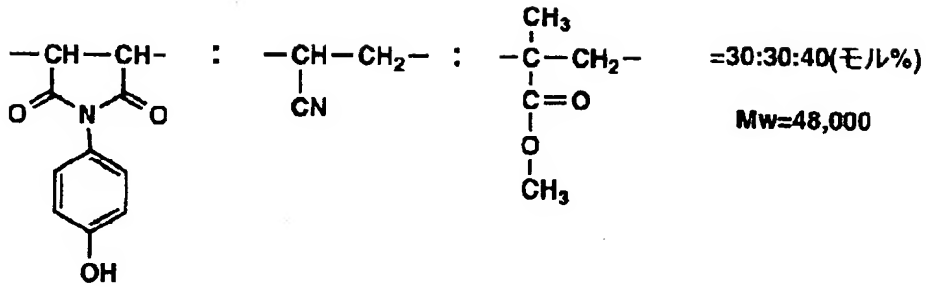
Mw=51,000

[0086]
[Formula 23]

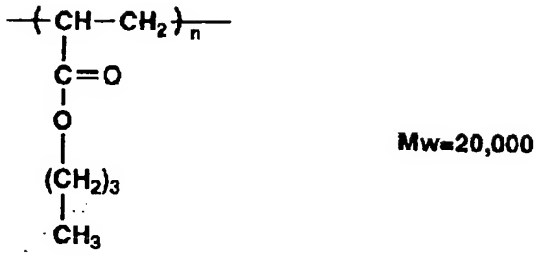
化合物D



化合物E



化合物F



[0087]
<Photosensitive constituent coating liquid -7> Acidolysis nature compound a 15g Novolak resin [the above] 80g S-triazine 4g Infrared-absorption coloring matter [the above] 1g Propylene glycol monomethyl ether 150ml Methyl ethyl ketone Charge of a photosensitive lithography plate which carried out 50ml (evaluation of development rate) creation - The oscillation wavelength of 830nm and 500mW infrared laser are used for each of 1-7, solid exposure of 10cmx10cm is performed, and it is immersed in a developer with a following presentation of 30 degrees C. Time amount until the exposure section dissolves completely was measured.
[0088]
<A developer presentation - pH12.7> A potassium silicate 1160g Potassium hydroxide 133g Pure water Pattern exposure is carried out using the above-mentioned infrared laser, and it is similarly immersed in 5133ml (evaluation of print durability) each charge of a photosensitive lithography plate. Negatives

were developed for 30 seconds. Huy Dell printing machine: -- GTO and Toyo Ink printing ink: -- yes, it printed using echo red and number of sheets until a defect occurs in printed matter estimated.
[0089] A result is shown below.
[0090]
Developing time Printing number of sheets (sheet) ** ****** -1 9 seconds 140,000 this invention ingredient -2 8 seconds 150,000 this invention ingredient -3 7 seconds 180,000 This invention ingredient -4 14 seconds 80,000 Ratio ****** -5 16 seconds 90,000 Ratio ****** -6 24 seconds 60,000 Ratio ****** -7 12 seconds 35,000 Ratio ** [0091]
[Effect of the Invention] As the example proved, according to this invention, the outstanding development nature and print durability can be obtained in the system used combining a photo-oxide generating agent and an acidolysis nature compound.

[Translation done.]